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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,584	12/27/2001	Kenji Yamagami	36992.00088 (HAL 197)	9186

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EXAMINER

LE, DEBBIE M

ART UNIT	PAPER NUMBER
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2167

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

4

Office Action Summary

Application No.

10/033,584

Applicant(s)

YAMAGAMI, KENJI

Examiner

DEBBIE M. LE

Art Unit

2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Note:

It is noted that the allowability of claims 1-13, 16-19 are withdrawn in view of new ground of rejection based upon a newly discovered art.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 18 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raise a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basic of statutory subject matter under 35 U.S.C. 101.

Claims 9, 12 and 16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raise a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application

producing a concrete, useful, and tangible result to form the basic of statutory subject matter under 35 U.S.C. 101. See AT&T, 172 F.3d at 1358,50 USPQ2d at 1452. Even though the claim language recited "An apparatus or an storage subsystem", however, it fails to recited a hardware to make it tangible.

To expedite a complete examination of the instant application the claims rejected under 35 U.S.C 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four categories.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-13, 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ofek (US Patent 6,654,752 B2).

As per claim 1, Ofek discloses a method of backup and restore procedure using a first storage subsystem (Fig. 1, # 11) and second storage subsystem (Fig. 1, # 10) which are connected to each other via a path (Fig. 1, # 12), the first storage subsystem connected to a first host (Fig. 1, # 40), the second storage subsystem connected to a second host (Fig. 1, # 13), the method comprising the steps of:

performing a backup procedure comprising the steps of (as backup operation, means the ongoing status, that the local system 10 and the remote system 11 are operating normally and are synchronized as a mirror (col. 9, lines 51-52, col. 10, lines 33-34):

providing a first logical volume in the first storage subsystem (Fig. 1, # 42 and 43, Fig. 20, # 336) and a second logical volume (Fig. 1, # 15 and 16, Fig. 20, # 333) and a third logical volume in the second storage subsystem (Fig. 20, #332, col. 25, lines 64-65), the second logical volume being a copied logical volume of the first logical volume, the first and second logical volumes being in sync state (as the ongoing status means that the local system 10 and the remote system 11 are operating normally and are synchronized) (see col. 9, lines 51-53), the third logical volume being a copied logical volume of the second logical volume, the second and third logical volumes being in sync state (Figs. 9, 11, col. 17, lines 14-18, col. 18, lines 9-14, 55-59); and

splitting the second logical volume and the third logical volume by a command from the first storage subsystem (as a command to split HOST 220 and the storage unit 223 which comprising two disk volumes 224 and 225 (as second volume and the third storage volume 226) (see Fig. 13, col. 16, lines 64-67, col. 17, lines 12-13); and

performing a restore procedure comprising the steps of (as restore commands)
(col. 22, line 50):

mounting the third logical volume to the second host (as reestablishes the BCV device 226 (third volume) to restore data from device 226 to the storage devices 224 and 225 (col. 17, lines 14-15, col. 18, lines 65-66),

reading, at the second host, a file to be restored from the third volume (as while the BCV device 226 has a valid copy, but the mirror devices 224 and 225 does not contain a valid copy of BCV device 226) (col. 22, lines 5-55),

writing, at the second host, the file to the second volume (as re-establish the BCV device 226 as a mirror 226 and restore data (data transfer) from the BVC device 226 when it operates as a mirror synchronized to the storage devices 224 and 225 (as second volume) (Fig. 17, col. 17, lines 15-17, col. 23, lines 32-40);

re-synchronizing the first volume with the second volume (as the second data storage can reconnect with and synchronizes with the first data storage thereby to reestablish the mirroring operation) (see abstract last 3 lines, col. 26, lines 51-55).

As per claim 2, Ofek teaches wherein performing a restore procedure further comprises: recovering a database onto the first volume, if a database application is being run on the first host (col. 16, lines 55-63).

As per claim 3, Ofek teaches wherein re-synchronizing the first volume with the second volume further comprises: determining from a pending data bitmap data on the second volume to be copied to the primary volume (as the M3 bits positions in the track status block for the mirror devices M1 and M2 defined invalid block, this merger

identifies only those tracks that need to be updated or refreshed to minimize the number of transfers needed to reestablish synchronism) (col. 21, lines 60-67, col. 22, lines 1-9).

As per claim 4, Ofek teaches marking write data arriving after the command in a pending data bitmap, thereby tracking which data has been modified (col. 20, lines 7-16, col. 24, lines 17-54).

As per claim 5, Ofek teaches wherein the command comprises identities of one or more files to be restored from the third volume and written to the second volume, and wherein reading, at the second host, a file to be restored from the third volume and writing, at the second host, the file to the second volume (col. 22, lines 5-55, Fig. 17, col. 17, lines 15-17, col. 23, lines 32-40), further comprises: reading exclusively the files specified in the command from the third volume and writing the files so read to the second volume (as receiving the reestablish request and all write pendings to the BCV are set to be invalid) (col. 21, lines 57-58). It would be inherent that the BCV device (as "the third volume") is allowed to be "reading exclusively" because only "all write pendings to the BCV are sets to be invalid".

As per claim 6, Ofek discloses a method, comprising:

receiving an indication of files to be restored (as a restore command) (col. 22, line 50);

determining whether the files to be restored comprise contents of an entire volume (as all data on the BCV device 226 to the mirror devices 224 and 225) (col. 22, lines 51-52), and if so:

splitting remote mirrors existing between production volumes and backup volumes (as a command to split HOST 220 and the storage unit 223 which comprising two disk volumes 224 and 225 (as second volume and the third storage volume 226) (see Fig. 13, col. 16, lines 64-67, col. 17, lines 12-13);

resynchronizing local mirrors existing between the backup volumes (as the storage devices 224 and 225) and volumes holding data copied from the backup volumes (as the BCV device 226 (third volume), at least one of the backup volumes and at least one of the volumes holding data copied from the at least one backup volume (as reestablishes the BCV device 226 (third volume) to restore data from device 226 to the storage devices 224 and 225 (col. 17, lines 14-15, col. 18, lines 65-66) being located in the same storage subsystem (see Fig. 17, # 223);and

resynchronizing remote mirrors for the production volumes and the backup volumes (as the second data storage can reconnect with and synchronizes with the first data storage thereby to reestablish the mirroring operation) (see abstract last 3 lines, col. 26, lines 51-55).

As per claim 7, Ofek teaches wherein resynchronizing local mirrors existing between the backup volumes and volumes holding data copied from the backup volumes comprises:

comparing a pending bitmap for the backup volume with a pending bitmap for the volume holding data copied from the backup volume to determine a set of differential data (col. 24, lines 43-53); and

copying the differential data from the volume holding data copied from the backup volume to the backup volume (as the M3 bits positions in the track status block for the mirror devices M1 and M2 defined invalid block, this merger identifies only those tracks that need to be updated or refreshed to minimize the number of transfers needed to reestablish synchronism) (Fig. 17, col. 21, lines 60-67, col. 22, lines 1-9).

As per claim 8, Ofek teaches wherein resynchronizing remote mirrors for the production volumes and the backup volumes comprises:

comparing a pending bitmap for the production volume with a pending bitmap for the backup volume to determine a set of differential data (col. 26, lines 32-45); and

copying the differential data from the backup volume to the production volume (col. 26, lines 46-48).

Claim 9 is rejected by the same rationale as state in claim 6 arguments.

Claims 10 and 12 are rejected by the same rationale as state in claim 1 arguments.

As per claim 11, Ofek teaches wherein mounting the third logical volume to the second host comprises: responsive to a command from the first storage subsystem, splitting the sync state between the second logical volume and the third logical volume (as a command to split HOST 220 and the storage unit 223 which comprising two disk volumes 224 and 225 (as second volume and the third storage volume 226) (see Fig. 13, col. 16, lines 64-67, col. 17, lines 12-13).

Claim 12 is rejected by the same rationale as state in claim 1 arguments.

Claim 13 is rejected by the same rationale as state in claim 6 arguments.

Claim 16 is rejected by the same rationale as state in claim 6 arguments.

As per claim 17, Ofek teaches wherein means for making information on the third storage means available for reading further comprises means for mounting the third storage means to a means for processing information stored by the third storage means (col. 21, lines 57-58).

Claim 18 is rejected by the same rationale as state in claim 6 arguments.

Claim 19 is rejected by the same rationale as state in claim 1 arguments.

Conclusion

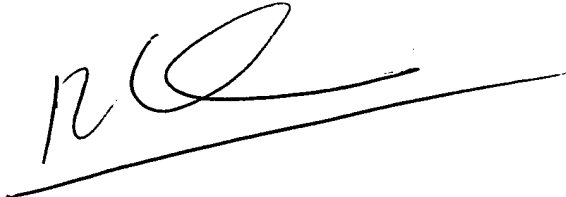
Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEBBIE M. LE whose telephone number is (571) 272-4111. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN BREENE can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "DEBBIE M LE", with a long horizontal line extending from the end of the signature.

DEBBIE M LE
Examiner
Art Unit 2167

Debbie Le

June 22, 2005.